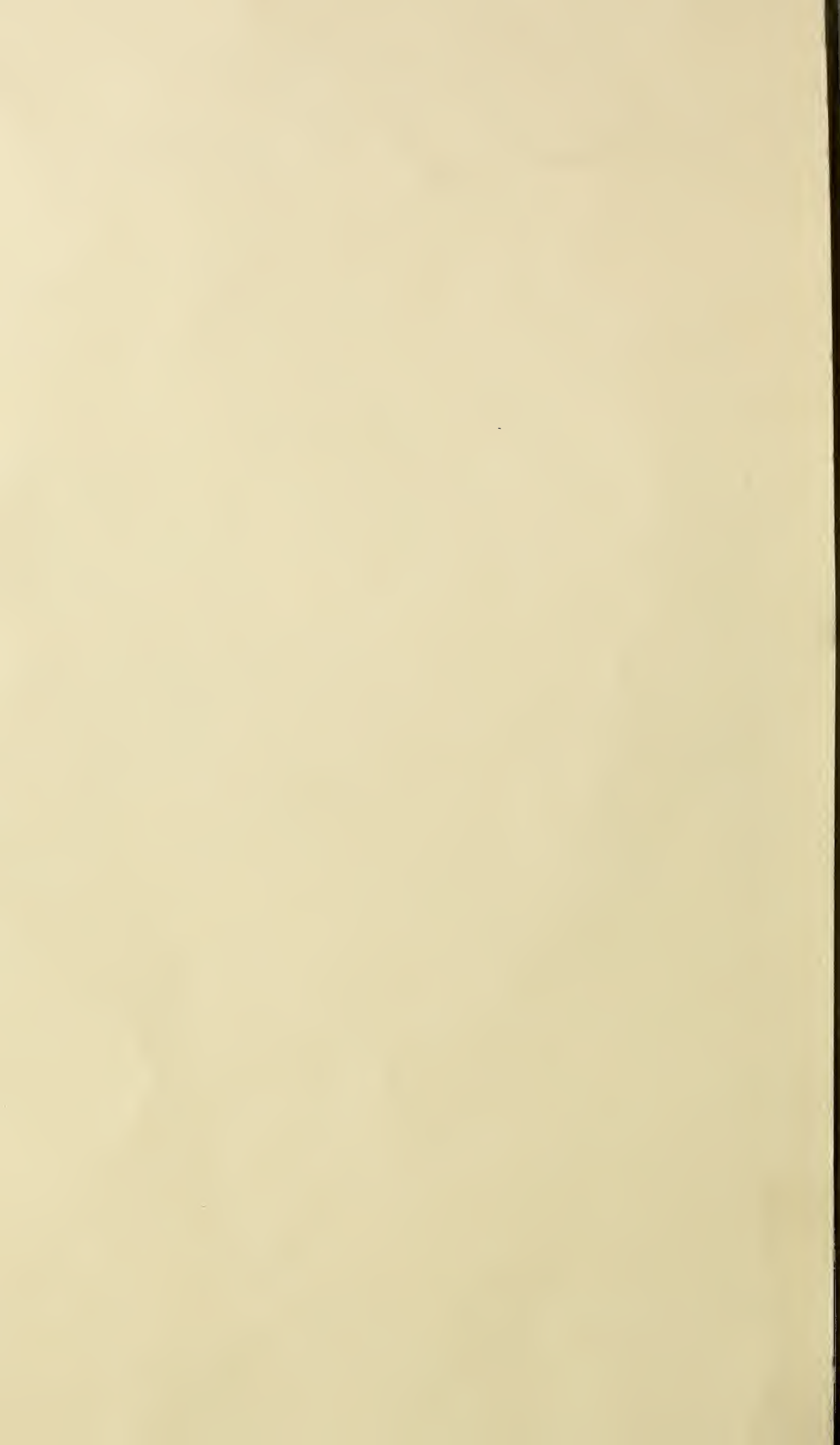


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VOLUME XXVII

NUMBER 8

The Agricultural Student

U. S. Department of Agriculture

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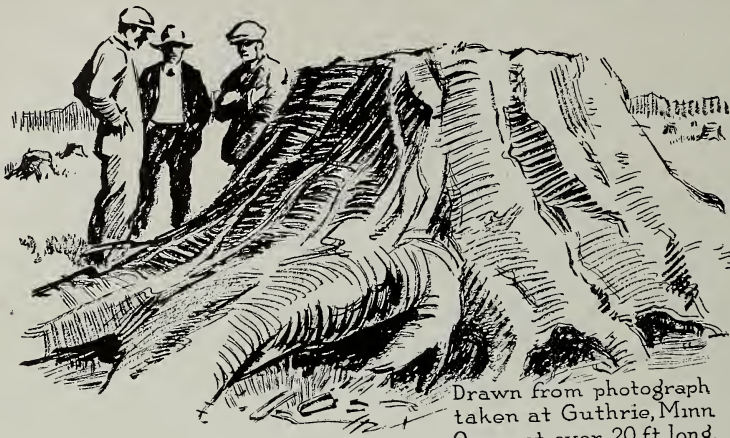
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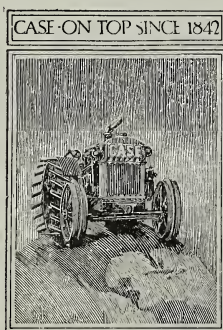
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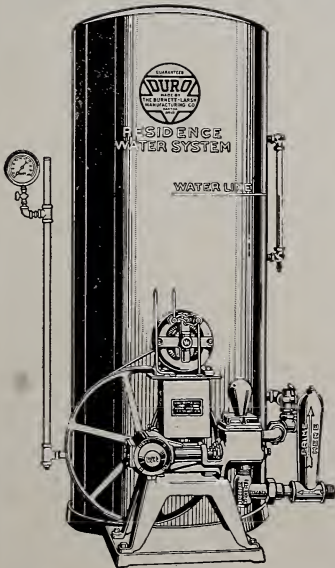
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The Agricultural Student

VOL. XXVII

OHIO STATE UNIVERSITY, COLUMBUS, OHIO, APRIL, 1921

No. 8

BRITISH AND AMERICAN SHORTHORNS

By KENNETH B. IKELER

(Mr. Ikeler is a graduate of Pennsylvania State College, received his Master's Degree from Iowa State College at Ames, was a member of the faculty of that institution and has traveled abroad in the interest of the Shorthorn Breed. At the present time he is associated with the farm of Huston and Ikeler at Granville, Ohio.)

NO one can visit the Old Country without being impressed with the great natural advantages that prevail there for the breeding of cattle. I have never visited a section which is more ideal for the production of good Shorthorns than the cradle place of the breed along the River Tees in Durham and York. From here the breed moved north into Aberdeenshire where it absorbed the rugged constitution and thickness of flesh so famous and characteristic of the Scotch Shorthorn. However, all Britain is admirably adapted to cattle because of its uniform rugged climate, excellent pastures throughout the grazing season, fresh water and freedom from heat and flies. I doubt if on the whole the breed could have been so carefully developed in America because we hardly enjoy the same natural advantages.

The pastures in Britain are an all-season proposition. When I arrived in Scotland the farmers were complaining about the drought they had experienced. Although not up to its usual standard the grass looked excellent to an American used to parched pastures in July and August. The breeders in the Old Country seem to consider the pasture their most valuable crop and give it the same care that we give our corn or any other cultivated crop. Basic slag, lime, manure and a mixture of pasture grasses, all combined, produce abundant and efficient pasture.

Collynie and Bapton Manor maintained the best pastures that I have ever seen and one is thoroughly impressed with the fact that carefully managed pastures are essential to the production of the highest type of pure bred live stock.

A comparison of the feeds employed in the two countries is very interesting. In this country our cattle are maintained during the winter largely upon corn, oats, clover and silage. In Britain turnips and straw combined with some grain makes up the ration. A crop of Old Country turnips is a revelation for yield. Their succulence produces a growth and thrift that is difficult to equal with any other combination of feeds. The labor and climatic conditions seem well adapted to the production of roots. The calves in the annual Aberdeen and Perth sales are cited as examples of root fed cattle with their abundance of mellow flesh and great smoothness. I often wondered how it was possible to produce good cattle on straw. However, Old Country straw is quite a different product than we have here. The oats there are heavier, stronger product and are not so light and chaffy. All of these tend to produce a little more thrift and size in their cattle.

The vigorous climate and feeds employed in Britain result in a great coat of hair which the breeders claim indicates constitution, thrift and feeding capacity. The water is always fresh

and no doubt has an influence on the bloom of the animal. These breeders are also free from the extreme heat and flies which makes the conditioning of cattle very difficult here during July and August. Their labor is also cheaper and usually more faithful than the average American herdsman. This fact is clearly brought out by the large number of Old Country cattlemen employed in this country. Many of the grand champions exhibited here have been developed and fed by a canny Scot who employed a great many Old Country methods and feeds. This man may not always be in evidence in the show ring altho he has been the man behind the gun.

While the Old Country barns, or houses as they are called there, are constructed of stone and are extremely substantial, they are not so healthful as the barns we find at home. Many of these Scotch barns are poorly lighted and ventilated and cannot help but be damp and unhealthy during the winter. In North Britain the cows are tied up in the fall in these barns and are frequently not released until they go to pasture the next spring and thereby get very little exercise. Another thing that seems peculiar is that these herds are usually not watered during the winter months, as the large amount of turnips that are eaten supply the animals with enough water. Down in England where the winters are mild, the cattle are allowed more freedom, and often have the run of pastures.

The Old Country breeders are an exceptionally pleasant lot of men to deal with. While their prices are high, they are not unreasonable in their askings. The American custom of employing cut price tactics is not altogether appreciated by many of the best breeders. The cattle are usually priced at what the

breeder thinks they are worth and you either accept or decline it. Unlike our system, Britishers are rather particular into whose hands their cattle fall. It is not only the money they want, but they are equally anxious to have the cattle do well for you.

The breed in Britain, as in this country, has enlisted the support of men of the highest character and walk in life. They have made the business a special study and proceeded upon the principle that a satisfied customer is their best advertisement. The best breeders do not hesitate to send their shy breeding cows to the butcher at once. I remember one breeder that sent a 1200 guinea bull to the butcher because of his being a rough server. A man that holds an annual public auction usually hesitates to price any of his stock at private treaty. I do not mean that there are no breeders over there that would "do you" if they had the opportunity. There are some men of this type, but they are usually well known and left almost entirely to deal among themselves.

The Shorthorn in Britain has been more fortunate than in this country in that many of the breeders have made Shorthorn production their life work. In many case their fathers maintained Shorthorns on the farm before them. The most marked improvement in the breed has always been made by men who had the interest of the breed first and stayed with it throughout a lifetime. True it is there have been some dealers and speculators, but this practice has not been so common as in this country. In Britain there is a big distinction made between a dealer and a breeder.

The Shorthorn cows of the Kingdom are certainly a nice lot, the result of many years of constructive breeding. They usually show plenty of scale, are

thick fleshed and short legged, show much breed character and considerable milking qualities. In many cases rare judgment has been exercised in maintaining the uniformity of the breeding herds. In England you frequently find some of the best cattle on English foundation with several crosses of the best Scotch bulls obtained in England. The result of such a system of breeding is a type of cattle that is especially pleasing. The calves running with their dams on pasture attain a sappiness seldom found in this country. With abundant pasture, plenty of fresh water, cool nights and freedom from heat and flies, the calves seem to grow and develop unusually well. The herds, however, are mostly small and not as large as here in America.

The best breeding bulls in Britain are practically never fitted for show and are usually maintained in a lean, vigorous condition. This is quite different from the practice frequently followed in this country. However, these bulls are sometimes maintained in adverse housing conditions where light and ventilation are none too plentiful. This call is on the upward trend with even brighter prospects in the future. At the present time the demand for bulls suitable for export is so great that it is difficult to keep the best bulls at home. This is probably one of the most serious mistakes among the breeders of British Shorthorns.

The Old Country breeders are thorough students of pedigree, much more, I believe, than the average breeder in this country. An American in Britain learns more about pedigree in a week than he would learn here in a much longer time. Many of the breeders are not only thoroughly familiar with the family of their cattle but they have a working knowledge of most of the ani-

mals within the tribe and know its various branches. Some people might say they are breeding pedigree rather than cattle. The Princess Royal is among the most popular families and I must admit that I saw few good cattle of this pedigree.

There are, however, some great differences between British and American pedigrees. There are usually less breaks and violent outcrosses in the British pedigree. Many foreign pedigrees have an unbroken line of six or eight dams bred by one or two breeders. When a family has been descended entirely thru one or two herds there are many advantages to be gained. Such breeders are generally more constructive and have selected their herd bulls with more care and uniformity. Such a cow should breed more true to type and I believe usually does. A survey of the situation teaches that many of the best breeding bulls in this country have been out of imported cows.

In conclusion, then, the British breeders have the advantage of being located in the native home of the breed and they have naturally absorbed that prestige. Furthermore they have the advantage of a cooler, more uniform climate, and the feeds employed tend to develop their cattle unusually well. They have given more attention to blood lines and made a more careful study of the business. On the other hand, our methods employed have been too loose, characteristic of a larger and younger country. The future offers unbounded opportunities for Shorthorn breeding and this country today has many constructive breeders. When we employ more careful methods of breeding, feeding and management and continue to demand individuality, the American Shorthorn will more than command its share of the trade.

THE SOW AND LITTER

By JOEL S. COFFEY, Professor of Animal Husbandry.

THE sow immediately after farrowing is usually in a more or less feverish condition, and her management for the first few days should be given especial attention. If she is improperly fed, disastrous results may attend the dam or her litter, or both. Usually for the first 24 hours after farrowing no feed should be given the sow, but, she should be provided with lukewarm water. By no means should the sow be given extremely cold water. In case the sow shows signs of wanting food during the first 24 hours, she may be given a little thin slop or gruel made of shorts or bran mixed in warm water or skim milk. Oatmeal also makes a splendid gruel for feeding at this time.

This careful feeding should be observed for the first 5 days, at least, after farrowing, and even then the sow will not be entirely ready for full feed. It requires a week to 10 days to get the sow to her full feeding capacity. The feed should be increased gradually up to this time.

In feeding the nursing sow, it must be kept in mind that the pigs during the first few weeks are making rapid growth and, furthermore, they are obtaining the means of this rapid growth entirely from the sow. Consequently, as soon as the sow has reached the stage when she can take full feed, she should be fed generously. Feeds comparatively rich in bone-and-muscle-building elements should be given the sow at this time. The ration can best be **made up of wheat, bran, shorts, skimmilk, some corn, and a succulent feed such as mangels or rutabagas.**

To show that pigs make their cheapest gains while nursing the sows, the following data from a Wisconsin experiment is given. It is to be hoped that the student of swine management will note these figures carefully and draw some valuable conclusions relative to the importance of feeding the nursing sow well. In this experiment 12 sows and their litters were used, there being a total of 86 pigs in the combined litters.

	First 4 wks.	Second 4 wks.	Third 4 wks.	Fourth 4 wks.	Fifth 4 wks.
Pounds of feed eaten by 4 sows:					
Grain -----	1623.7	2307.0	2327.0	1350.6	1032.4
Skimmilk -----	5841.0	4945.0	4720.0	2703.0	2046.0
Pounds of feed eaten by 86 pigs:					
Gain -----	-----	642.4	2665.1	4530.8	6397.8
Skimmilk -----	-----	937.0	3849.0	6787.0	9861.0
Pounds gained by 96 pigs-----	953	1140	1670	1670	1910
Average daily gain made by each pig----	.40	.47	.69	.71	.81
Pounds of loss made by 12 cows-----	256	104	17	45	29
Pounds of feed for 100 lbs gain of pigs					
Grain -----	170.3	259.7	59.0	352.1	390.5
Skimmilk -----	613.0	516.0	568.0	568.0	623.0
Cost of feed per 100 pounds gain -----	\$2.21	\$2.70	\$3.44	\$3.56	\$3.96

The last line of this table shows that the cheapest gains were made in the first 4 weeks of the pigs' life, when they received their feed entirely from the sows. The second 4 weeks show a 20 percent increase in the cost of gains, the third 4 weeks a 55 percent increase, the fourth 4 weeks a 61 percent increase, and the fifth 4 weeks a 79 percent increase in the cost of gains. These costs of gains are all computed upon the basis established by the cost of gains the first 4 weeks. According to this table, the cost of gains increases quite regularly with age.

Exercise and Range for the Sow and Litter

It must be realized that a sow which farrows in March has little opportunity for ranging over fields or woods. However, if she and her litter are given access to fields that are to be plowed for corn in the spring, much benefit will be derived therefrom. The field should be in fairly firm condition and the sun reasonably warm before the sow and her litter are turned out. If such management is impossible and inadvisable, the lot in which the sow and her litter is kept should be of sufficient size to warrant considerable exercise for both the sow and the pigs.

Below are several grain rations which may be used for sows suckling litters.

1. Corn 1 part, skimmilk 6 parts. When this ration is fed, there should be fed in connection with it some bulky or succulent feed such as chopped alfalfa, clover, or roots of some description, for corn and skimmilk are not sufficiently laxative in character.

2. Corn 2 parts, shorts 2 parts; mix with water.

3. Wheat chop (which is made up of small grain and milling refuse) 4 parts, hominy hearts 5 parts.

4. Corn 1 part, oats 1 part, middlings 2 parts; add 5 percent oilmeal to this mixture.

5. Barley, oats and shorts in equal parts mixed with skimmilk.

6. Corn and shorts in equal parts mixed with skimmilk.

7. Corn, oats and oilmeal, ratio 6:2:1; mixed with skimmilk.

8. Middlings, corn and skimmilk, 3:1:8 proportion.

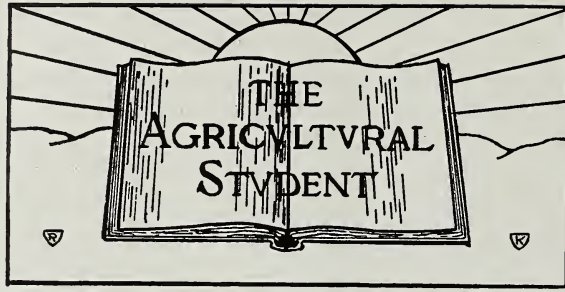
The above rations all include a liberal proportion of the bone-and muscle-building food nutrients such as oilmeal, skimmilk and middlings. If the feeder desires to use tankage as the source of protein in the ration, and corn as the basis ration, then the proportion should be approximately 8 of corn and 1 of tankage. Where this ration is fed in dry lot it is advisable to feed with it some of a succulent nature, such as rutabaga or mangels.

The swine grower who observes his animals closely, will note that the young pigs soon begin nibbling at the feed given the sows. Such symptoms on the part of the pigs should solicit action on the part of the herdsman. A separate creep should be built wherein the pigs may be fed and remain unmolested by the sows. The creep need not be an elaborate affair. A simple pig pen so arranged that the small pigs may enter and the sows be excluded is all that is necessary. If skimmilk is available, it with cracked corn will be excellent for the pigs. Or if it is inconvenient to give the pigs this ration, any of the mixtures advised for the old sows will suffice for the pigs.

Diseases of Pigs

There are certain common pig ailments which must be ever kept in mind by the producer of pork. These ailments

(Continued on page 386)



OF
OHIO STATE UNIVERSITY
A Medium for Exchange of Ideas Between College and Farm

OUR PURPOSE.

With this issue designed especially to interest breeders and livestock men, we take the second step in our new policy of making **THE AGRICULTURAL STUDENT** just what the public demands. Livestock farming constitutes what is possibly the most important branch in Agriculture. For this reason we devote the major part of this issue to that, thus emphasizing our policy in making this publication successfully meet the demands of the progressive breeders of the country.

BETTER SIRES.

Added impetus is being given the Better Sires-Better Stock movement by Professor Plumb, who has outlined the possibilities to the Saddle and Sirloin Club of Ohio State. A plan of action is being made which needs support. The University Grange has unanimously voted in favor of the plan, and other organizations will follow. What this movement really means will be found on page 366. All must acknowledge the importance of such. Then let's boost it. You community leaders, county agents, teachers, farmers—Boost the Better-Sires Campaign and have Ohio again go over the top in a national way. Prizes are to be offered. Go after them and aid this worthy cause. Make every township, every county, all Ohio 100 percent purebred.

OHIO STATE FIRST.

Statistics compiled by Raymond Walters, of Lehigh University, places Ohio State first in enrollment of Agricultural students with a total of 1257. Cornell comes second with 1182. Ohio State also leads in enrollment in Veterinary Medicine, numbering 106 to Cornell's 76. However, Ohio ranks tenth considering the enrollment of all the colleges combined.

This is indeed an interesting showing; a fact for all Ohio to be proud of. We have taken our stand along with the largest and best institutions of the United States. However with this position in size comes added responsibilities as to quality. Is the type of men Ohio State turns out an asset in the majority of cases? To make every graduate an asset places before us a worthy ideal. To realize this requires the united support of every loyal Buckeye. A direct tax for the support of Ohio State will soon be brought before the tax-

payers for action. Support it; for to be able to "Be There" Ohio State must have more funds. The need of additional facilities are evident. New buildings are needed, more instructors are necessary, the highest type of instruction must be made available by sufficient funds for salaries. When called upon to do our bit, let us not fail but direct our attention and undivided effort toward the assurance that Ohio State is not only one of the largest, but also that she is the best institution of learning in the country.

THE NEW SECRETARY OF AGRICULTURE.

With the change of the executive head of this democracy on March 4, came an appointment which has been welcomed with nation-wide interest centered more intensely among the readers of Wallace's Farmer and others who have had the privilege of a more personal touch with Henry Cantwel Wallace, of Des Moines, Iowa. Chosen to head one of the foremost departments of President Harding's cabinet, solely thru virtue of his outstanding ability and clear vision and decidedly without political effort on his own part, Henry C. Wallace bears all assurance of being a wise choice for Secretary of Agriculture.

Coming from a long line of ancestors who have lived close to the soil and ever in the interest of the farmer, the new Secretary combines an experience not equaled by many men, and a frank and unbiased sympathy with the problems of the American farmer. Since his graduation from the Iowa State College of Agriculture and Mechanic Arts, Secretary Wallace has been actively engaged in farming, farm organization leadership, and the editing of the farm paper which his father founded.

Secretary Wallace takes his chair of office at a time when a crisis confronts American agricultural interests. His task in the next four years will be one of arduous readjustment and betterment of the conditions governing the status of the farmer.

With due faith in his ability and leadership, and with an earnest desire to advance agriculture, let us, as true agriculturists, enter into a spirit of cooperation with the Department of Agriculture which will mark the beginning of a new era.

G. W. T.

FARM BUREAU.

Again the Farm Bureau grows. This time by affiliation. None grow weaker—all grow stronger. The Cooperative Livestock Shippers, the Wool-growers, the grain men, and the Dairymen are the new brothers. Their identity is not lost in the change—instead each will be an organization armed with the advantages of the other. Individual jealousy has been one of the obstacles to overcome. There now is a greater evil than jealousy and that evil is division. How true "Together we stand, divided we fall." One only has to survey the industrial field to get practical examples. Why not more organization? The Farm Bureau is our salvation. No man ever saw his shadow who faced the light. Be a booster of your Farm Bureau and its new brothers.

B. P. H.

ANIMAL HUSBANDRY

J. GLENN BATES, Editor; E. L. HAWK, Assistant.

BETTER SIRES CAMPAIGN

The "Better Sires Campaign," as its name signifies, is a drive to put better sires on every farm. This campaign has been carried on in a few states for the past few years and it is just the question of a short time until every state in the Union will be linked up with the work. Prof. C. S. Plumb has direct charge of the work in Ohio. His plan is to conduct the campaign thru the school children of the state. The students will be given an opportunity to canvass their communities for farmers who will pledge themselves to keep none other than purebred sires on their farms. Banners will be given to the counties which have the most signers as well as many other attractive prizes to the students which line up the largest number of farmers.

The Saddle and Sirloin Club will have charge of the work on the campus in cooperation with Prof. Plumb. They will endeavor to reach the entire agricultural college through the Grange, literary societies and other organizations in their work. The Agricultural College with the Saddle and Sirloin Club in charge has already offered \$100 as the first prize to the student in Ohio who secures the largest number of names of farmers who are willing to keep purebred sires.

SOME LEADING

DUROC-JERSEY SIRES

When the producers of the smooth, compact Duroc hog united with the breeders of the large, rugged, and prolific Jersey Red to establish the Duroc-Jersey breed, they found what grew to

be one of the most popular breeds in eastern United States at the present time. This was about 40 years ago and today we find a number of breeds of earlier inception have been outdistanced in numbers by the marvelous growth of this popular red breed.

Outstanding sires have been numerous among the Durocs, and a survey of some of them will reveal the breeding that has contributed most of the success to the breed.

One of the great show and breeding boars of the past was old Orion. He was the sire of the Orion Cherry Kings and the Crimson Wonder strains. Colonel M 3285, the foundation of the Colonel family, was another boar whose influence has been a great value in the molding of the breed. Some of the leading sires of the Colonel strain were King of the Colonels 11075, Premier Colonel, Chief of the Colonel, Defender 25893, King Wonder and Ohio Colonel. Altho King of the Colonel was not an outstanding show boar, his reputation as a sire stands unsurpassed. Perhaps none of his sons attracted wider attention than Defender 25891, who was twice grand champion of the breed at the International Stock Show. In addition this big type boar has a great record as a sire.

Undoubtedly the most outstanding sire of the breed in recent years has been Orion Cherry King 424754. He was grand champion of the breed at the International Stock Show in 1913, and was produced by crossing the Orion and Protection lines of breeding. The place of the Orion Cherry Kings fills a vast chapter in the history of the Duroc-

Jersey breed. Of his sons, Orion Cherry King Jr. sold in 1919 for the enormous sum of \$32,000: another, Joe Orion King (Scissors) was grand champion of the breed in the 1917 swine show.

There are a large number of families or strains existing in the breed as shown by the preceding remarks on sires. The best known ones are the Colonel, Orion Cherry King, Protection, Crimson Wonder, Sensation, Critis, and

are offered, which are pro rated on a percentage basis among the winning exhibitors. We now come to the consideration of some of the real questions pertaining to Draft Horse Futurity. What are the advantages offered to the breeder of draft horses and how does it apply to the needs of the breeder?

1. The Futurity Show has emphasized in the minds of breeders, the ab-



First—Filly Class, Eastern Belgian Futurity, 1919. Madam King 7367 (3149). Owned and Exhibited by Ohio State University, Columbus, Ohio.

Defender. This is in brief a resume of the outstanding breed lines of the popular Duroc-Jersey breed.

ADVANTAGES OF DRAFT HORSE FUTURITY

The First Futurity Show was held at the Ohio State Fair in the fall of 1912 and since then has very rapidly gained in popularity. The Futurity Class in 1916 was double that of 1912. At the present time purses of \$1000 for Percherons and of \$500 for Belgians

are offered, which are pro rated on a percentage basis among the winning exhibitors. We now come to the consideration of some of the real questions pertaining to Draft Horse Futurity. What are the advantages offered to the breeder of draft horses and how does it apply to the needs of the breeder?

2. The futurity Show invites the patronage of the small breeder. The common practice on the part of State Fair Boards is to make but four awards in each class, which minimizes the number

of winning exhibitors in each class and fails to invite competition. On the other hand, in case of Futurity Classes, eight, ten or twelve awards are commonly made. Thus more range is given to the class list and the farmer breeder is encouraged to compete. The door of opportunity is thrown open to the small breeder and gives him a real chance to share in the prize money. The futurity colt is also eligible to compete in classes regularly provided for yearlings in State Fair catalogues and thus given opportunity to win additional money.

3. The Futurity Competition is a splendid method of advertisement for breeders, resulting in the sale of colts at high prices. When these colts are gathered at the State Fairs, buyers have an opportunity to see them at a minimum expenditure of time and money. In case sales result at remunerative prices, the breeder rids himself of the risk which always attends horse production.

4. A winning colt in the Futurity Show not only enhances his own value but also increases the prestige of his sire and dam. It has been the medium thru which many sires and dams, practically unknown, have come into prominence. The Futurity is a cooperative scheme for the promotion of horse interests.

5. The Futurity helps to increase the entries in the other classes because the breeder that goes to the trouble of showing in the Futurity Classes for the big money, feels that it will be but little additional bother to show everything that he has, which is in condition to show and is eligible to the remaining classes.

The Futurity Show at the present time is a valuable asset to the production of high quality draft colts and

from the consideration of the shows of the past few years, it seems assured that it will be bigger and better in the future.

SHORTHORN CONGRESS

The Fourth Annual Shorthorn Congress, which is the big event of the year to Shorthorn breeders, was held at the Union Stockyards, Chicago, February 22, 23 and 24. For months breeders had been looking forward to the Congress, for they felt that it would sound the keynote of the coming year's trade, and when the great event had passed there was not one that was dissatisfied. True, the average was not as high as in former years, but it was good considering the year and the present financial situation. It showed that there will be a good trade at correct prices for the coming years. The 366 head of cattle went through the ring at an average of \$430. Imp. Swinton Rosicrucian 2nd was the top of the sale at \$6500 and also Grand Champion of the show. Although we are sorry that more of the prizes did not come to Ohio, we are very glad that Ohio breeders are so situated that they can hold most of their stock and only sell a few in these more strenuous times. If only the cattle had been sold that the breeders wanted to sell the Congress would have been very small this year, and considering this we are glad that Ohio breeders are so well situated. The quality of the stock was up to, if it did not excel, that of former years and the admirers of this breed went home with higher hopes and renewed determination to stick to the job.

W. H. F.

It is as difficult for some students to talk when they have something to say as it is for some others to keep silent when they have nothing to talk about.

FEEDING THE EWE FLOCK FOR LAMB AND WOOL PRODUCTION

By TOM C. STONE,

Extension Assoc. Professor, Department of Animal Husbandry, Ames, Iowa.

SUCCESS in sheep raising rests to a very large extent upon the proper care of the ewe flock during the fall and winter. A lamb gets its start on the right or wrong road before it is born and much trouble at lambing could be avoided if breeding ewes were given proper feeds and care during the fall and winter months.

Although a breeding ewe may have had good care and pasture during the summer, she naturally runs down in condition. It is not well to breed the ewe when she is in this condition as she will go into winter quarters weak and thin and will not be as able to resist disease as she otherwise would. If ewes are gaining in condition at mating time there will be an increased percentage of lambs. If the ewes are in good condition the breeding season will be shorter as conception is more sure. This is a great advantage as the lambing period is soon over and lambs coming near the same time will be more uniform and will sell higher on the market.

Flushing may be accomplished by turning the ewes upon a more luxuriant pasture than they have had, or by giving a light grain ration. Rape and pumpkins are also good for flushing.

During the fall and early winter the sheep may utilize the feed that would otherwise be wasted. The ewes may be allowed to run in the stubble and stalk fields. Clover and blue grass pastures are also very desirable and will help greatly in keeping the ewes in good breeding condition. It may be well to reserve the latter until the stubble and stalk fields have been used. It is a good

practice to keep these breeding ewes on pasture or harvested fields as long as the weather conditions will permit. Sheep are often kept on pasture without extra feed until quite late in winter. Many cheap roughages may be fed during the early pregnancy period.

WINTER QUARTERS FOR EWES.

When the extreme cold weather comes with its heavy snows, the ewes should be quartered in dry, airy, well ventilated, well lighted barns. Cold, dry weather does not bother sheep, but the lambing quarters should be warm. The barn should be free from drafts and should have wide doors. Drafts may result in coughing, running at the nose, and lung disease, while narrow doors may result in broken hips, crushing of little lambs, and abortion of the ewes. A breeding ewe should have about eight square feet of shed room; it is best that this be exclusive of racks. This varies according to the breed.

There are two essentials in the care of the breeding ewe, namely: She should get plenty of exercise and should be fed sufficient feed of the right kind.

First of all, the pregnant ewe should be given plenty of exercise. This will result in healthier and stronger lambs at birth and the ewes will deliver their lambs much more easily. When the weather is at all favorable the ewes should be out of doors. If the corn field is near the barn they may be turned on the corn stalks for part of the day or shock fodder may be hauled to the ewes and spread over the pasture. The ewes will get exercise going to and from the barn to the fodder. They should be compelled to take this exercise and

should walk at least $1\frac{1}{2}$ to 2 miles a day.

It is very important that the ewes be properly fed. During the winter they should be given sufficient feed but not overfed. The beginner is likely to overfeed, underfeed or feed a poor ration. One should avoid feeding too much grain before lambing. The amounts and kinds to feed will depend upon the breed and size of the ewes as well as upon their condition when put into winter quarters. If the ewes are in a very thin condition when put into their winter quarters, a small amount of corn may be fed in conjunction with bran and oats, or if corn is not available, a little barley will do well with the oats and bran, but when ewes have come into winter quarters in good condition a mixture of two parts of oats and one part bran will give excellent results. The proportion will depend on the prices and availability of the two feeds. The oats strengthen the ewes and bran is a laxative and serves to keep the ewes in good shape. A mixture of one-third each of oats, corn and bran has been fed with good results to breeding ewes. A mixture of bran, oats and oil meal makes a desirable ration for the breeding ewe. Corn should never be fed as the sole grain ration, as it is too fattening.

Clover, alfalfa or soy bean hay should be fed. Either of these are desirable hays. Mr. Uhl, shepherd at the College Farm, Ames, Iowa, states that he has fed a great deal of soy bean hay to the college flock and finds that when he feeds this hay he need not feed more than one-fourth pound of grain per ewe per day. This grain ration is usually a mixture of oats and bran. He states that he does not feed any grain previous to a month before the lambing season, but relies entirely on one of the leguminous hays. This is quite a general practice. In this connection it may be

stated that timothy hay is a very poor feed for sheep as it causes constipation and much of the trouble with breeding ewes comes through the feeding of this roughage. Too much emphasis cannot be placed upon the latter statement. If one must feed timothy he should cut it before it goes to bloom. It is then fairly digestible.

If one must feed timothy he should feed a little oil meal with the grain. One-eighth of a pound per head per day seems sufficient. Many ewes have failed to produce milk for the lambs because they were given timothy hay, since it does not contain proper constituents for producing milk.

There is no element in the winter ration of the ewe that is of more importance than that of succulence. The wonderful thrift and breeding capacity of old country flocks is said to be due to the fact that roots constitute the basis of the daily ration. Silage seems to be the most practical winter succulent feed for ewes. The question is often asked as to whether or not silage is a good feed for pregnant ewes. It is a good feed if certain precautions are taken in making and feeding it. Silage for breeding ewes should be well dented. In the process of making, the corn plant should be cut very green, distributed and tramped well into the silage. This will help to insure against moldy silage. It should not be fed to excess and one should avoid feeding moldy silage. Two to three pounds of silage per head per day is sufficient for the average size ewe and under average conditions. This amount may be increased after lambing. Silage should never be the sole roughage. It should be fed with a good legume hay.

One should not feed grain heavily the last few days before lambing. If one is

(Continued on page 394)

VOCATIONAL AGRICULTURE

BOYS' AND GIRLS' CLUB WORK, ETC.

E. B. BARKER, Editor; J. A. MALICK, Assistant.

BELMONT CO., O., HOLSTEIN-GUERNSEY CALF CLUB

Program of Work, November, 1920, to November, 1921:

First Meeting—Held Dec. 14, 1920, at St. Clairsville.

Second Meeting—Feb. 23, 1921, 8 P. M.; place, Chas. Wise's residence. Program: Business session in charge of officers; local speaker on timely topic: "Fun Fest" (Helen Greenlee in charge).

Third Meeting—Apr. 29, 1921 (subject to change; place to be arranged. Program: Business session; educational program in charge of committee of three, assisted by Club Leader: Social Hour, in charge of Social Committee.

Fourth Meeting—June 24, 1921; place to be arranged. Program: Business; educational session: Holstein Association; field man; public invited; refreshments. Open meeting to be held on lawn. Ice cream social after Holstein talk.

Fifth Meeting—August 13, 1921; place to be arranged. Program: Business; educational, and speaker on "Slick 'Em Up for the Fair;" games and stunts.

Sixth Meeting—Sept. 6, 1921; place to be arranged. Program: Business; preparation for fair, and speaker; Social Hour.

Note—Committee in charge of educational and social hours to be appointed by the president of each meeting.

The above program of work was worked out by the Holstein-Guernsey Calf Club of Belmont County. Helen Greenlee, the secretary, was dairy calf club state champion in 1920.

The officers are as follows: Theodore Wise, president; Alfred Whinnery, vice president; Helen Greenlee, secretary; F. G. Willerton, Leader; J. C. Neff, County Agent.

STOCK JUDGING CLUBS

Rather a unique plan of cooperation has been worked out in Greene County between the farm bureau and the school authorities, whereby they are to organize what they call Stock Judging Clubs, for the purpose of teaching the boys and girls in the clubs the better appreciation of live stock.

The district school superintendent together with the county superintendent are organizing in the various townships regular clubs of five or more boys and girls. These members as groups are to make a study of the judging of live stock. The superintendents serve as local leaders and once a month each club visits a farm on which is kept good livestock and then, under the direction of the county agent and the Smith-Hughes teachers, a regular judging contest and demonstration is held. Each month a different class of live stock is studied. In this way they expect to make a special study of each breed of live stock.

The Greene County Fair Board has offered suitable prizes, both to individuals and teams, at a judging contest to be held at the county fair. The team consists of three club members selected from the five or more in the club. At the county fair, a team will be selected to represent the county at the State Fair. This seems to be a very

practical method to study live stock and to teach young people to appreciate good live stock.

DEPARTMENTAL CHANGES

D. O. Stough on February 1 took charge at Grand Rapids, succeeding V. G. Applegate, who has taken charge of his father's farm in Shelby County.

R. H. Sunderland, '10, is substituting for Thomas E. Berry, '18, during Mr. Berry's absence due to sickness.

CLUB ORGANIZED

In the interest of the development of the breed, an Ayrshire Calf Club has been organized for the boys of Montgomery County, Indiana. The club at present consists of 12 purebred registered heifers to be used as foundation stock. They were sold to the boys for an average price of \$225 per head.

Peppy Pointers

By Powers.

Keep to the right on the road to success,

Faint hearted people need the left for the return trip.

The University of Santo Tomas in Manila is 25 years older than Harvard University.

It is expected that the 1920 census will show that one-third of all persons in the United States who are gainfully employed are women.

Their various cares in one great point combine

The business of their lives—that is to dine.
—*Young.*

There is only one way to be happy and that is to make somebody else so.—
Sidney Smith.

What God has joined together,
Let no man put asunder.
And yet the darned divorce courts,
Still work away like thunder.

Statistics show that there are fewer divorces from leap year marriages than from those of other years.

You've got to give the girls credit for hanging on to what they pick anyway.

Of what shall a man be proud, if he is not proud of his friends?—*Robert Louis Stevenson.*

Prominent Ag. student is dead from broken neck. He was taken to the hospital for lumbago, but when the doctor rubbed his back with alcohol he couldn't resist the temptation to try and lick it off.

Beware of little extravagances—a small leak will sink a ship.

When a woman cans fruit it's a put up job.

It is doubtful if even the flying machine will help us to occupy our air castles.

Farmer—See here, young fellow, what are you doing up in that tree?

Stude—One of your pears fell down, sir, and I am trying to put it back.

Most fellows who offer their heart and hand to a co-ed lose their head in the transaction.

THE DAIRY

J. E. FREW, Editor.

NOTED HOLSTEIN BREEDING

One of the best lines of breeding is to be found in the descendants of the great herd bull, Sir Pietertje Ormsby Mercedes, who was owned by the Shroeder Farms in Minnesota. Perhaps it will be of interest to note that one of his sons, who won the get of sire class at the 1920 Ohio State Fair, is owned by a syndicate of breeders at Wauseon, Ohio.

AYRSHIRE NOTES

One of the greatest sires that the Ayrshire breed has ever produced is found in Beuchan Peter Pan 7140. He was a sire who won honors both in the show ring and in the development of the Ayrshire breed. He was bred by Robert Osborne, Morton Mains, Thornhill, Scotland, a son of Morton Main Young Bonnie Jean 17445, sired by Duke of Wigtown 4735, and may be said to possess a blending of the best Ayrshire blood lines in Scotland. Altho he has finished his active career, his influence and achievements have done much for Willowmoor Farm at Seattle, Washington, where he was owned, and for the Ayrshire breed in general.

A NEW RECORD

The fourteenth Holstein-Friesian cow to make over 30,000 lbs. of milk and the third to make over 1,400 lbs. of butter in a year has recently been developed at Carnation Stock Farm, Seattle, Wash. This six-year-old Holstein, Segis Pietertje Prospect 221846, not only made the world's record for milk in a year, 37,384.1 lbs. and 1,445.9 lbs. of butter, but a seven-day record of 33.18 lbs. butter. This yeild is the

highest, in milk, for any cow of any breed to date, and was made under the rules of the Advanced Registry Division of the Holstein-Friesian Association of America. The new world's record milk cow is of strong constitution and pleasing individuality, weighs 1,650 lbs. and took from 16 lbs. to 25 lbs. a day of a mixture of nine standard grains, with alfalfa hay, green crops, beet pulp and molasses.

HOLSTEIN-FRIESIAN SALES

Some of the important Holstein-Friesian sales to be held in this section:

April 15—Richmond, Va., Virginia H.-F. Breeders' Club Sale: W. L. Kirby, Mgr.

April 19-20—Columbus, Ohio, Ohio Breeders' Sale.

April 21—Charlotte, Mich., Eaton County Breeders' Sale: A. N. Loucks, Sec'y.

April 23—Springville, Pa., Glenn Billings Dispersal.

TESTING NOTES

The Penfield Cow Testing Association of Ohio has just completed its work for a year and reports a considerable lead for one herd of Ayrshires over the twenty herds of Holsteins in that association. The record herd was owned by B. G. Betts and Sons, of Wellington, Ohio.

DAIRY COOPERATION

The passage, last year, of the Griswold bill which outlines the methods of cooperation and the recent passage of the Brand bill which permits cooperation of farmers in a way hitherto im-

possible in compliance with laws on our statute books, offer hope for the redemption of the agricultural situation.

The report of the Census Bureau presents a very serious problem for it shows by statistics gathered that in 1919, 470,000 people were on Ohio farms, while in 1920 the number was only 410,000. The attraction of higher wages in the city has been turning the tide that way and the only thing that will turn it back is an equalization of the farm and city incomes. This means either a decrease in the income of the city laborer or an increase in the income of the producer.

There are two general processes by which this may be brought about. General education and organization among producers offer one method and specialization, or following some line of agriculture not followed by the average farmer, offers another. However, as the number engaged in the production of specialties increases, the effectiveness of this method in bringing about the desired end is decreased.

An illustration of the value of efficiency in farm operations is found in a Portage County dairy herd. According to cow testing association records in that county, a herd of 72 cows had an average yearly production of 12,232 pounds of milk per cow, making a profit above feed cost of approximately \$295 per cow. The overhead expenses amounted to about \$95, thus leaving a labor profit of \$200 for each cow. This means an hourly wage of 66 2-3c, since about three hundred hours are required to care for a cow during the year. When it is realized that the hourly wage of the average dairyman is about five cents the comparison is very forcible and brings out the fact that efficiency in farm operations must be increased.

In 1905 the average cow produced about 3100 pounds of milk in a year, while at the present time the average yearly production is approximately 4,750 pounds. An increase of 48 percent in fifteen years shows that efficiency in the dairy business is bringing about results. Efficiency in farm operations makes products cheaper for the consumer, but since an increased amount of labor and responsibility is required on the part of the producer, he does not receive a proportional return.

Cooperative bargaining associations really offer the only direct solution of the problem. The law of supply and demand naturally controls the price of a commodity, but with a thorough knowledge of the business, it is possible for the producer to influence to a great extent the supply and demand for his product.

Under the Brand law bargaining associations may be legally organized and in case of disagreement, investigations may be made and arbitrated by the Utilities Commission. Producers cannot buy and sell collectively safely except in accordance with the Brand law and whether the organization receives the advantages of protection and arbitration offered by the Utilities Commission is optional with the organization.

The Griswold law makes it possible for cooperative companies to operate on the so-called "revolving plan." According to this plan the organization neither makes profits nor sustains losses. The producer receives the price paid by the ultimate purchaser less the expense incurred in handling the product and a proportional share of the payment of the certificates or stock. This eliminates some of the greatest difficulties in cooperative work. A large

percent of the cooperative associations in the past have failed, or at least have not met with success, on account of the losses incurred under the "stock company plan."

Under the Brand law only one vote may be cast by each stockholder or certificate holder who becomes the only participant. This prevents controlling stock and distributes the power among the men who are producing and at the same time the dividend received is limited to 8 percent. Under the revolving plan no dividends are paid and hence there can be no objection to the dividend clause in the law.

When this plan is put into operation the producer actually receives a greater labor income and the consumer procures his products at a fairer price.

In the past cooperative companies have not met with the greatest success, but with improved methods of organization, better management and the protection of wise and just laws, the cooperative method of distribution will become the most effective and most economical method of marketing farm products.

SHORTHORN NOTES

The Illinois Shorthorn Breeders' Association held its fifth annual meeting at Galesburg, Illinois, on February 15 and 16, 1921. The sale was composed of 270 head of Shorthorns from 64 herds. They sold for an average of \$205 each, with a top of \$1550 for Ramsden Princess, a daughter of Sittyton Select, born March 19, 1919.

A Shorthorn Breeders' Association has been organized in Madison County. This is the third county organization in the country and the first one to adopt a constitution and by-laws.

IN THE GOOD OLD DAYS WHEN THINGS WERE THINGS

A gentleman living in a New England village recently came across an old account book kept by his father between 1814 and 1841. Some of the items run as follows, and give the reader "that yearning sensation":

January 1, 1827—Four bushels of potatoes, twenty-four cents.

January 1, 1828—Seven and three-fourths pounds codfish at three cents, twenty-three cents.

August 25, 1829—One gallon vinegar, seventeen cents.

August 13, 1820—Thirteen and one-half pounds cheese at six cents, eighty-one cents.

April 20, 1830 — One and one-half bushels sweet potatoes, thirty-seven cents.

October 12, 1829—Peck turnips, six cents.

July 2, 1825 — Gallon molasses, thirty-four cents.

November 6, 1830 — Three bushels fall apples, thirty-seven cents.

The rate of wages is recorded as follows:

July 16, 1822—Two days shingling house, \$2.

January 4, 1840 — Cutting wood, thirty cents.

April 16, 1828 — One day making wall, fifty cents.

January 17, 1828—Carting lumber, sixty-six cents.

November, 1824—Making eight logs and finding stuff, thirty-two cents.—American Industries.

Gladys—"Mabel is two laps ahead of Emily in their leap year race."

Phyllis—"Two laps?"

Gladys—"Yes, Harry's and Bob's."

THE CAMPUS ECHO

H. W. HARSHFIELD, Editor; MERRILL CONN, Assistant.

OHIO STATE UNIVERSITY'S LEADING HOLTEINS

The outstanding cow at present is the 12-year-old Ohio Colantha Bakker with a record of 19,493 pounds of milk and 873 pounds of butter. She is the daughter of Judge Hengerveld De Kol, who has sired 43 tested daughters. Four sons of this cow have been in service in Ohio, Pennsylvania and South Carolina and all have made creditable showings. One of her sons, Ohio Yet, is the sire of Ohio Canary Yet, the first prize three-year-old heifer at the Ohio State Fair, who has just completed a record of 13,500 pounds of milk and 625 pounds of butter on two milkings a day. Ohio Bakkerole, a daughter of Ohio Colantha Bakker, made a record of 15,636 pounds of milk and 689 pounds of butter as a two-year-old.

Ohio Lizette was the first prize cow at the 1920 Ohio State Fair and also senior champion. She made a record of 16,324 pounds milk and 625 pounds butter as a two-year-old and is now on retest with the promise of making over 20,000 pounds of milk.

SADDLE AND SIRLOIN CLUB

The Saddle and Sirloin Club is making arrangements for their spring program. This will include the annual sheep shearing contest during the first part of April. At this contest there will be entries both for professional and student shearers. Other classes will be made for power and hand shearing. Several handsome prizes will be offered to the winners of these contests.

Another event which will be given later on in the spring will be a horse show. As heretofore, this show will be given in cooperation with the Columbus Riding Club. In the past this event has attracted a large amount of interest among local horsemen.

The club is also lending its powers in the interest of the "Better Sires Campaign" in Ohio. As this club is composed of students in animal husbandry this campaign is one of vital interest to its membership.

FACULTY HEARD FROM

Sometimes a few students may be heard complaining that the faculty is seldom heard outside of the campus, yet in the "Who's Who in America" there were thirty-four O. S. U. men, not a few of which were from Ag Alley.

This list contained such names as Dean Alfred Vivian, who is the author of two books on chemistry and soil fertility; Charles S. Plumb, with seven books on farm animals to his credit; E. N. Transeu, the author of "Science and Plant Life;" J. I. Falconer, of the rural economics department; Wendell Paddock, in horticulture, and Raymond C. Osborn in zoology.

STOCK JUDGING CONTEST

To make the course in Animal Husbandry 135 as interesting as possible, it has been decided to hold another judging contest among the members of the class in the spring.

The one held last semester was a success as was shown by the interest displayed by the participants.

MATH. PROF. PREFERS HORSES

Who would associate horses with mathematics.

Professor R. D. Bohannon, head of the mathematics department, is the most enthusiastic horseman on the campus. In his stables he has two fine Kentucky thoroughbreds.

"Riding is the best sport in the world," states the professor.

**CREAM GRADING INSTITUTE
HELD BY UNIVERSITY**

A cream grading institute in charge of the dairy department of Ohio State University was held on March 7th and 8th. The institute is the result of a demand for instruction in cream grading due to the ruling by Attorney General Palmer that all butter made from neutralized cream is subject to a 10 percent tax.

Instructors for the course are F. W. Bouska, of the American Association of Creamery Butter Manufacturers; Prof. O. Erf, Assistant Prof. R. B. Stoltz, and H. D. Drain, instructor in the department of dairying of Ohio State University.

MAKE CREDITABLE RECORD

Two senior students, John T. Knox, of Painesville, and Virgil O. Hutchinson, of Smithville, enrolled in the four-year agriculture course, have just completed a seven day test on Ohio's Maudine Yet, one of the University's Holstein's cows. She produced as a senior three-year-old in her second lactation period 22.5 pounds of butter in the seven days.

It takes a lot of nerve for a young married man to go into a store and buy a dozen safety pins from some girl he was once sweet on.

ALUMNI

A. J. Bishop, '15, is another one of the successful Percheron breeders of Delaware County, Ohio, who claims Ohio State University as his Alma Mater.

Thomas P. White, '07, at Hooker, O., is one of the State's successful Jersey breeders and dairy farmers. He was visiting the campus again March 10.

Ray Smith, '04, is another of Ohio's successful Jersey breeders.

Ralph Postel, ex-'21, is breeding purebred Poland-Chinas and Shropshires near Pataskala, Ohio.

Lee Palmer, ex-'21, is the junior member of the firm of Palmer & Son, breeders of choice Shropshire sheep, Pataskala, Ohio.

Henry W. Vaughn, '08, who has at different times been professor of Animal Husbandry at both the Iowa and Minnesota State Colleges of Agriculture, is now editor of the Duroc-Jersey Digest.

B. L. Thompson, '08, is breeding Poland-Chinas near Pataskala, Ohio.

Harry Bond, '15 D. V. S., is a member of the Ohio State Veterinary Corps, and lives in Columbus.

Donald Acklin, '08, of Toledo, Wood County, Ohio, has for the past few years been manager of the Horse Show at the Ohio State Fair.

Glen Rupert, '21, will upon graduation return to his home farm and assist his father in maintaining the high standard of excellence already attained in their Jersey herd. His home is at New Waterford, Ohio.

C. T. MacVey, '20, whose father is a prominent Ohio breeder of Poland-Chinas, is now in the Animal Husbandry Department at Purdue.

James E. Smith, '21, is manager for the Tri-State Orchard Co., at Hancock, Maryland.

Paul E. Barnes, '11, is in charge of the Columbus office of the Federal Bureau of Markets.

E. C. Clayton, '16, who took his Ph.D. at University of Wisconsin, is now extension pathologist at O. S. U.

Frank Copper, '16, has a responsible position with the Armour Fertilizer factories and is located at Chicago.

W. R. Elliot, '04, is extension specialist of the Agricultural College at Lexington, Ky.

Burt Miskinnen, '08, is farming in Delaware County.

Frederick R. West, '05, has been growing wheat for several years in the Canadian Northwest. Mr. West now resides in Upper Arlington, Columbus, Ohio.

George Trisler, '21, who graduated at the end of the first semester, immediately accepted a position on the sales force of the Deming Pump Co.

Thomas P. White, '07, is farming in Fairfield County, Ohio.

P. W. Kelly, '12, who has for the last two years been spray expert for the Sherwin-Williams Paint Co., has resigned and will take up a similar position with the United States Department of Agriculture.

J. D. Fowser and Don Huss, '17, are both located at Laredo, Texas, where they are employed as inspectors of the Federal Plant Board.

W. W. Glines, '16, is extension specialist at Ohio State University.

J. H. Gurley, '—, is head of the Department of Horticulture at Morgantown, W. Va. He held a similar position at Durham, N. H., for several years.

James C. White, '05, is farming in Delaware County, Ohio.

Thomas B. Foster, '06, is County Agent for Fairfield County, with headquarters at Lancaster.

George Crab, '07, is professor of Agronomy at Athens, Georgia.

G. H. Hood, '10, is professor of Vegetable Gardening at Lincoln, Neb. Prof. Hood is author of several texts of a horticultural nature.

Charles Cotton, '05, is chief of the Bureau of Plant Industry of the Ohio State Board of Agriculture.

R. R. Jeffries, who was graduate assistant at O. S. U. in 1913, has returned as assistant professor in the Department of Horticulture.

Ira J. Condit, '05, is professor of Citriculture at the University of California.

H. G. Jacobs, '18, was recently granted a Master's Degree at the University of California.

Prof. J. L. Edmonds, of the University of Illinois, is a member of the class of 1908.

Howard Haigler is farming at Washington C. H., Ohio.

The Smith Bros., Percheron breeders, who are located near New Carlisle, O., are both alumni of Ohio State.

W. H. Pew, '07, who has served at the New Hampshire State College and at the Iowa State Experiment Station, has been farming near Ravenna, Ohio, for the past two or three years. He is the junior member of the firm of John O. Pew & Son, breeders of Poland-Chinas and Shorthorns. Imp. Glaryford Augustus, an International winner, heads their Shorthorn herd. Besides managing their farm Mr. Pew acted as judge at several fairs last fall and also spoke at Ohio State Farmers' Week.

Wm. S. Barden, '19, who has since his graduation been County Agent for Morrow County, has resigned to take a similar position in Richland County.

HOME ECONOMICS

HOME ECONOMICS PRACTICE APARTMENT

By GLADYS L. RECOB, '21.

Home Economics does not mean simply cooking and sewing but teaches the arts practiced in the home. It is fitting that one of the final problems in the Home Economics course be that of house management. This broadens and fills in the gaps with experience—it makes use of science, art and appreciation. The senior girls, six at a time, are required to live from two to six weeks in the practice apartment in the Home Economics Building. Their chaperone is one of the instructors. Each girl during her stay has the duty of hostess, cook, assistant cook, maid, waitress, and housekeeper, and all agree that the duty of any one of these well done is enough while doing regular college work. As well as the household routine and the economic side of house-keeping, the social aspect is stressed.

Home Economics teaches "that simplicity in material surrounding which will free the spirit for the more important and permanent interests of the home and society." Therefore the aesthetic side—to beautify the setting of our lives—is very important. To make a home approach ideal, the rules of art in color scheme and furnishing, must be considered. A room must also be suited to its use and occupants. Several of the departments of the University are aiding the Home Economics Department in improving the practice apartment. Chief of these is the Art Department, which in turn has had aid from the Ceramic and Industrial Art Department.

Dining room furniture—table, chairs, and tea wagon—of oak, made in the Shops, has added beauty to an otherwise commonplace room.

The living room must be suited to girls, for entertaining and rest and, as planned, will also embody the ideals of the University. For example, the andirons designed are typical—a squirrel near the base and at the top an Ohio State seal.

A fireplace is almost indispensable in the living room. Next in importance is the color scheme, which must be cheery but not bright enough to yell "Hello," and must leave walls and floors as a background for people and furniture.

The southwest exposure and the size of the apartment living room are excellent. The heavy curtains of art linen and tan walls are not to be changed. The curtains are especially interesting when the sunlight shines thru and brings out their interesting, rough texture. The classes in Interior Decoration have stained new wicker furniture and some valuable pieces of old furniture to harmonize with the woodwork; the classes in Design have, besides designing the andirons, also planned the lampshades and the addition of color by pottery and draperies. The floor covering will be of rough Scotch wool and will go well with the texture of the curtains and the wicker furniture.

When the period of training is over, no side of the experience will be lacking and the background will have approached ideal.

REAL BABIES FOR CLASSROOM

Part of the "live stock" now furnished by the Agricultural Department of the University of Minnesota to its women students in Home Economics consists of a supply of real babies. It seems that the young women can learn to run a home much better with a real baby to practice on than with mere lectures or stage infants. It might be thought that this would be rather hard on the babies, but according to The Survey the results have been as good for the infants as for the students. To quote:

"For several years all students taking Home Economics have been required to live, as a part of the course, in a 'home-management house' during their junior and senior years. The houses, of which there are two, are intended to give experience in the actual problems that women must meet in the home; they are situated a short distance from the campus, and though rented, meet their expenses from the living fees paid by students. To round out the experience thus gained, a child has recently been placed in each house, the students taking turn in being responsible for the care of the child over a period of a week or ten days. The girl in charge makes out the baby's menus, prepares its meals, launders its clothes, bathes and dresses it, and sets as a goal definite other things. For example, she may teach it certain words, teach it to use its spoon or to go to sleep without the light on. During the day she is relieved by other girls so she can attend classes. Thus far three boy babies and one girl baby have been 'loaned' by a children's home in St. Paul for this purpose; the ages of these babies have ranged from twelve months to twenty-one. The results of this experience, in the opinion of the college, have been

good both for the students and the babies. For the babies it has meant increased weight and material development; for the girls it has meant actual responsibility in the care of children, an experience which only a few had before, and 'a new viewpoint regarding the home-makers' contribution to the community.'—*The Advocate*.

NEED OF INDIVIDUALITY

The home dressmaker who pins every garment together before she sews thus checking on lines and proportions which are becoming to her will usually obtain a much better effect than when every section is firmly sewed into place in the beginning. Famous style artists usually bring about their "creations" by shutting themselves away from prying eyes with fabric and pins and a dummy as equipment, depending upon inspiration to do the rest.

One of the principal drawbacks to the success of the home dressmaker is that she relies too much upon the directions that go with patterns. Patterns are all well enough, often really necessary, but they should be taken usually merely as guides and not followed too literally—that is if a frock or other item of apparel is to possess any real individuality.—Oregon Countryman.

CLEANING CLOTHING

People were just beginning to learn that ether was very useful in removing grease spots from clothing and other textiles when the war created a shortage of it and gasoline again had to be resorted to, notwithstanding it had doubled in price, and left a residual odor on the goods that wasn't pleasant.

For a long time ether has been used in cotton and woolen mills for removing spots from new cloth.

Ether can be purchased in drug

ARCADIAN

Sulphate of Ammonia

The Value of the Acid Residue

Sulphate of Ammonia is acted upon in the soil by bacteria. The ammonia is split apart from the sulphur radicle and the nitrogen is oxidized to nitrate, in which form it is used by the plant.

As a result of these actions, the sulphate radicle is left as an acid residue, and must be neutralized by the bases of the soil. Experiments show that for every 100 pounds of **Sulphate of Ammonia** applied to the soil there is used in neutralizing the sulphate radicle, bases equivalent to approximately 78 pounds of calcium carbonate or ground limestone.

In a soil well supplied with bases, especially calcium carbonate, this acid residue is of benefit to plant growth. It sets up in the soil a digesting process which changes unavailable plant foods into available form. The principal elements thus made available are phosphorus and iron, though potassium and other valuable elements may be released to the plant. It thus serves one of the important functions of a green manure crop plowed under.

Where the soil is naturally low in bases, i. e. in acid soils, the long-continued use of **Sulphate of Ammonia** may bring into solution certain soluble salts in sufficient amounts to prove detrimental to plant growth. Just such a condition has resulted at the Pennsylvania Experiment Station, where large amounts of **Sulphate of Ammonia** have been used on the same plots for a period of 39 years.

During the first ten years of these experiments, **Sulphate of Ammonia** produced higher yields than the other carriers of

nitrogen with which it was compared, and it required 20 years for the nitrate of soda plot to equal the **Sulphate of Ammonia** plot in total yield. At the end of 39 years, the loss of lime has altered these relations. Laboratory pot tests with soil taken from these plots have shown, however, that an application of lime will bring the **Sulphate of Ammonia** plots again to highest yields.

The layman is often led to believe that the acid residue makes **Sulphate of Ammonia** less desirable than certain other forms of nitrogen. Recent experimental work indicates that the acid residue is a most desirable property of this fertilizer, providing the lime supply of the soil is maintained.

The cost of supplying the extra lime necessary to maintain proper conditions amounts to less than 25 cents per hundred pounds of fertilizer applied, and the added value from the special properties of **Sulphate of Ammonia**—such as quick availability, resistance to washing away, fine and dry condition, the ability to make other plant foods available, and low original cost—more than warrants this slight extra expense.

During the first 5 years of the Pennsylvania experiments, 48 pounds of nitrogen, as **Sulphate of Ammonia**, produced \$4.60 worth more crop than did the same amount of nitrogen in the next best carrier. The value of the extra lime removed by the **Sulphate of Ammonia** was less than 60 cents.

Write Desk No. 18 for a digest of Experiment Station reports showing the value of Sulphate of Ammonia properly used.

Atlanta, Ga.
Berkeley, Cal

The *Barrett* Company
Agricultural Department, New York

Baltimore, Md.
Medina, Ohio

stores in half pound cans. It is not expensive, but is very volatile. After taking the required amount from the can, the container must be tightly closed as soon as possible, otherwise our cleaner dissolves into thin air.

Ether is inflammable and should not be used anywhere near an open flame or open fire, nor in a closed room where the ventilation is not good. The same care should be exercised in its use as in the use of gasoline, benzine and like products.

NEED OF PASTURE

IMPROVEMENT

According to the 1910 census report, the amount of pasture land in Ohio is greatly increasing. Upon investigation into the matter this fact is revealed, that after a piece of land becomes so poor that it will no longer produce a fairly good crop, it sooner or later becomes pasture land. It is held by many that in this way something can be gotten out of the land. It would otherwise lie fallow.

If these same fields are to remain in permanent pastures, it is obvious that something must be done in the way of improvement if we are to realize anything worth while from the use of such lands.

Statistics show that Ohio has a total of 7,973,822 acres of land in pasture. But there are only 4,536,624 acres of this improved. It is estimated that the carrying capacity, per 100 acres, for the improved land is 50 head of cattle, while the carrying capacity of the total is only 39 head. With the value of feed from pasture alone amounting to something like \$10,000,000,000 per year in the United States, it looks like a paying proposition to rid up our old pastures. We should also amply provide for the future of the lands just

recently turned into pasture on account of the low productivity of the soil.

In most any section of this state there is still to be found many acres of old pasture that have never had any care to speak of since the timber was cut off. The reason for this is quite obvious. It has always been thought that a pasture did not need any care. Therefore, the farmers, believing this theory, have never taken the time to improve their pastures.

As a result of this conception, there is still to be found a considerable number of acres that have been in pasture for the last fifty or one hundred years without having received a bit of improvement. In many cases these pastures, if they can be called that are in a deplorable state, weeds, briars and underbrush are growing in great profusion. Such lands are practically worthless as they exist under these conditions but, by a little hard manual and mental labor they can become a valuable source of income.

Pasture experiments are extremely expensive as compared with field crop experiments. This has been the thing that has held back pasture experimenting more than any other cause. The yield of the pasture must be measured thru the medium of live stock. The experiment, therefor, requires a number of acres in each plot, each receiving a different treatment. In order to get data on the variations caused by the inequalities of the land or the seasons, it is necessary that these experiments be duplicated a number of times and be conducted over a period of years. So at the present time, we have not very much information on pasture management and improvement.

However, one experiment station, the Virginia, in cooperation with the office of Forage Crops, has conducted some



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There are two big reasons why it is desirable to speed up hay harvest—the cost of labor and the pressure of other work. The quickest and most economical way to speed up haying is to employ efficient time and labor-saving machines.

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notable pasture experiments. These experiments are sort of revolutionary in nature. It has often been stated, that overgrazing is the fatal error in pasture management. The result secured in the western ranges were in full accord with this idea and served to drive home more fully to the eastern farmer this doctrine of light grazing. Then came the Virginia experiment which throws a different light on the subject.

The results secured by this station are as follows; the heavier a pasture is grazed, the better it is for the pasture; the only consideration of the farmer should be for the stock and not for the pasture. The experiment also shows that the stock will always suffer before the pasture is injured. For three years the field grazed with one steer to the acre for an average of approximately five months out of the year gave a gain of 1485 pounds in weight on animals. The field grazed with one steer to two acres gave gains of 838 pounds for three years. Furthermore, the field under heavy grazing was greatly improved, the undesirable plants being forced out leaving the ideal pasture grasses.

On the lightly grazed fields just the opposite was true. The turf was not so good to begin with and weeds soon came in. The conclusion reached was that more harm is done to blue grass pasture from undergrazing than from overgrazing. However, when we come to consider the animals these results show a different trend. The gain per animal under heavy grazing per season was 247 pounds while under light grazing the gains were 279 pounds. The problem is then reduced to the farmer whether the economics of the situation calls for maximum gains for the animals or maximum gains for the pasture acreage. These results secured at the Virginia Station have since been

verified in North Dakota on prairie grasses and in Utah on tame grass pasture.

After considering the grazing problem, the next step towards improvement is the controlling of the noxious weeds. The cutting off repeatedly with a mower, scythe or other tool is probably the best means of killing or controlling most kinds of weeds. In some cases it would be advisable to gather and burn thus preventing them from being scattered by the wind. Sheep and goats are especially valuable in cleaning up underbrush, briars and also some kinds of weeds. But it often happens that too much is expected of these animals. There are many kinds of plants that they will not eat. If these are left the pasture will sooner or later become infested so that other means must of necessity be used if we are to free our pastures from the clutches of the weed pests. There are some weeds that can not be eradicated by ordinary means. As examples of these are the thistle and dock. These can only be permanently killed by removing with a spud or hand hoe. If we are to consider the future of our pastures, it is necessary that we give these strong growing weeds early and persistent attention.

Probably the greatest need of those lands just turned into pasture is the building up of the soil. The old pastures of course need it too, but not quite so much as the new. It is fallacy to believe that stock will return to the soil as much as they take off in producing growth, fat, wool or milk, unless they are fed some added feed especially concentrates. There are, however, many who contend that keeping up the fertility of pastures is of minor importance. Much can be said in favor of barnyard manure and commercial fertilizers, as a means of keeping up the fertility of



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Length: 96 inches.

Width: 50 inches.

Height: 52 inches.

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Traction Surface:
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*Center to Center of
Tracks:* 58 inches.

Belt Pulley: Diameter
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the soil. A common method used is to harrow over the sod, in the case of an old pasture, with some sort of a harrow preferably a spring tooth harrow. This operation not only breaks up the turf thus killing some of the weeds but it also breaks up and scatters the droppings. Lime and commercial fertilizers can now be added. In many cases the seed sown at the time the lime and commercial fertilizer are added, however, some prefer to sow the seed a week or so later. This seems to be a good practice because most of the old grass will rejuvenate after a good shower. It makes a pasture that will last longer and be accessible earlier in the spring. Barnyard manure can be applied most any time. However, better results are obtained where it is applied in the fall, winter or early spring. In the case of newly seeded pastures it is better to top dress in the late fall as the coating of manure will serve to protect the young plants from the severe winter weather.

There is no question as to the economical gains made by cattle, sheep or hogs on good pasture. Therefore, with this in mind we should not ignore the pasture problem as we have been prone to do in the past. Right now it is looming up still larger and more important than ever.

H. G. DOSTER.

LAWBREAKERS

The results gathered in the inspection of the crime wave in New York gave some interesting data. The chorus girl carried off the blue ribbon in the records of lawbreakers, while the farmers took a legal tumble, 17 of the latter running amiss. How the chorus girl carried off the blue ribbon in the realm of lawbreakers is shown by this tabulation: Cooks, 78; domestics, 84; housekeepers, 17; laundresses, 4; milliners,

3; seamstresses, 5; teachers, 4; waitresses, 89, and stenographers, 18.

QUITE FRANK

An enterprising dealer in electric wares hangs out the sign: "Don't kill your wifie with hard work. Let your washing machine do the dirty work."—The American Legion Weekly.

SOW AND LITTER

(Continued from page 363)

ments may be grouped broadly as (1) parasitic, and (2) digestive. The parasitic group may be divided into two classes, namely, **EXTERNAL** and **INTERNAL** parasites. In most cases parasite troubles are directly due to improper attention to sanitation. Unclean quarters and insufficient disinfection will lead to serious parasitic troubles.

External Parasites

Among the common external parasites we find lice and mange, particularly. The common remedy for these is the use of either coal tar dip preparation or crude oil. The amount of the former to use will vary with the particular brand in question. There are numerous makes of coal tar dips, and the strength varies. In nearly all cases, directions for use accompany the container for the dip. Crude oil as a remedy for external parasites is administered in various ways. It may be used in the form of a dip, or sprinkled or brushed upon the animals, or furthermore, it may be used in the patent oil rubbers which are offered on the market. In the summer, the mud wallow is an effective means of eradicating lice, and therefore should be provided for the pigs. When crude oil is used as a dip, it is unnecessary to make up the entire bulk of the dip with

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Can cure every case of sour soil sickness. His patients always get well. Colonel Clover will swear to it. Doctor Agstone charges less for his services than any other dirt doctor. His medicine is safe to take in sack, ton or car-load doses. Boost for Bins. Insure crops. Farms kept healthy, make you wealthy.

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the oil. Fully four-fifths of the bulk may be made up of water. The oil, being lighter than water, comes to the top, and when the animals are submerged they pass through the top layer of oil, thus receiving the desired coating of oil. About 3 inches of oil upon the water is sufficient.

On farms where sheep are grown and dipped regularly, it is a good idea to follow the sheep dipping with a hog dipping. A conservation of material attends such a proceeding, and certainly good results should be obtained.

Internal Parasites

Worms of various sorts constitute the most common internal parasites. Such worms may cause digestive troubles or coughs in the pigs, and should be eradicated as hastily as possible. The wormy pig is usually characterized by an unthrifty and untidy appearance. The coat stands away from the body, often the appetite is lacking, and when the appetite is not lacking there is a slow response to feeding. The pig badly infested with worms is unprofitable in the feedlot. It should be borne in mind, that if from any cause the vitality of the pig becomes impaired, it is more likely to be susceptible to attacks from worms. H. C. Dawson in his hog book advocates the following remedies for worms:

1. "Turpentine given in a milk emulsion, 1 teaspoon of the turpentine for every 80 to 100 pounds liveweight. The treatment to be repeated daily for 3 successive days.

2. "From 3 to 5 grains of san-tonin and 5 to 8 grains of calomel for every 100 pounds liveweight of the pigs."

This last dose may be administered in the feed. Best results are obtained if the drugs are given on an empty

stomach. It would therefore be advisable to keep the pigs away from feed the night previous to the administration of the medicine.

Professor Wm. Deitrich in his book on Swine suggests the following worm remedies:

1. "Fluid extract of spigelia and senna given in half-ounce doses every 4 hours until purging begins.

2. "A 1 percent solution of coal tar creosote given in one-ounce doses on an empty stomach and repeated in ten days."

Any one of the above suggested remedies should prove satisfactory in eradicating worms. However, the san-tonin treatment is most often resorted to by practical swine husbandmen.

If proper preventive methods are employed, there should be little necessity of having to administer any cure for intestinal parasites. Clean quarters, clean feed and proper disinfection all serve to prevent worms. Such mineral substances as coal slack, wood ashes, charcoal, air-slacked lime, cinders, and others are thought by many to act as preventative against intestinal worms.

Canker or Sore Mouth

Is another minor ailment among pigs, which is doubtless due to a germ found in unclean places, such as manure heaps. Pigs should not have access to such places. However, should this ailment appear among pigs, they should be treated with a 2 percent solution of some coal tar dip. This is not a serious trouble among pigs, but best growth and gains cannot be obtained when it is present.

Black or Needle Teeth

Are sometimes found in the upper and lower jaws of young pigs. While the presence of these does not constitute



Velvet beans planted with corn do not materially affect the yield, but give 900 pounds of shelled beans or the feeding equivalent of sixteen additional bushels. Finished cattle are shipped direct from the velvet bean pastures.

The Country for the YOUNG FARMER

COME to the country along the Seaboard, where land is low priced—where beef and pork are made—not with high-priced concentrates and hay, but with home-grown concentrates and year-round pastures. Here is where the young man can buy a farm without staggering for years under a heavy mortgage.

This productive territory has more farms than farmers. It offers pioneer opportunities without their hardships.

The feed crops are different from those of the North, but yield amazingly. The average acre of peanuts will make as much pork as 60 bushels of corn—sweet potatoes make as much as 100 bushels of corn.

Velvet beans planted with the corn yield the feeding equivalent of sixteen additional bushels besides an immense amount of hay. Cattle are turned into the fields to harvest their own balanced rations—rapidly get into condition for market.

20 to 30 Tons of Silage

In Florida, south Georgia and Alabama it is possible to fill the silo almost any time of the year. Japanese cane yields twenty to thirty tons or more of good silage per acre. No sheltered barns are needed.

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A Note to Jesse Jones

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an ailment with the pig, yet it may cause a sore udder on the sows. Consequently, if the herdsman should observe sore teats and udders on his sows he had better examine the mouths of the pigs and see if any of the long, black, sharp teeth are present. If so, they should be removed.

Digestive Troubles

Thumps is perhaps the most common digestive ailment among young pigs. The direct cause of this trouble is too much feed and too little exercise. Here lies the chief difficulty of having pigs farrowed too early in the year. Pigs farrowed in January and February have little opportunity for exercise, due to the cold weather. Thus the pigs nurse, lie down and become over-fattened. This condition, in turn has such an effect upon the diaphragm that an abnormal, jerky breathing occurs, which is very noticeable to the observer. Unless the feed is reduced and the pigs given exercise, death will result. The feed can best be reduced by limiting the quantity and quality of the feed furnished the sow. This in turn will reduce the milk flow. Thumps are most common among pigs which are from 2 to 8 weeks of age.

Scours

May be the result of one or two causes, namely, indigestion or from an infectious germ. When the latter causes the trouble, the disease should more properly be listed with the parasitic ailments. However, so long as the trouble is one of the digestive tract it will be discussed here. Indigestion is the result of injudicious feeding, both as regards the quantity and quality of the ration, and furthermore, in the administration of the same. Sudden changes in rations should be especially avoided. If the feeder desires to change

from sweet to sour milk, or vice versa, it should be done gradually and with judgment. Feeds too rich in protein must be fed with caution as they are liable to give indigestion, which in turn will start them to scouring.

The best procedure is to *prevent* scours due to indigestion. However, should the ailment occur regardless of one's best judgment, then the pigs should be thoroly cleaned by using a physic such as oil or epsom salts. When the pigs are thus thoroly cleansed, the feed given them should be limited in quantity and of such a character that it will be easily digested. A thin gruel of shorts or oatmeal should be satisfactory immediately after the purging process.

When the scours are caused by a germ, the character of the feces is usually different. The color is usually white and foul in odor. Strenuous preventive methods should be employed against this ailment, by a thoro disinfection of all sleeping, exercise, and feeding quarters, as the neglect of them may furnish a breeding bed for the injurious bacteria.

Relative to the ailments in young pigs, we might say in conclusion, that there are three factors upon which the health of the young animals depend. These factors may be termed (1) proper feeding; (2) proper sanitation; and (3) abundant exercise. Between these factors there is interdependence, and inattention to the proper relation of one to another will most likely lead to unsuccessful pig production.

Roger A. Luxon, ex-'01, is farming at New London, Ohio.

L. B. Wiley, '15, is County Agent for Muskingum County, Ohio, with offices at Zanesville, Ohio.



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SHORT AG. DEPARTMENT

J. V. TEMPLE, Editor.

THREE-YEAR AG. COURSE TO BE DISCONTINUED

The three-year course is to be dropped as soon as those now taking the course have graduated. "Under the new four-quarter plan, the course will have outgrown its usefulness," said T. G. Watson, secretary of the college. "It was adopted in 1906 and was intended for those men who had to work in the farm during the summer and who had no high school training." Under the new plan the student who has no high school training will be allowed to enter as a special student.

WHAT SOME OF THE SHORT AG. ARE GOING TO DO

Mr. G. A. Thomas will return to his father's farm in Ashtabula Co. and help in the betterment of Ohio Holsteins.

R. A. Reuter will return to his father's farm in Medina Co. and along with this he will assist in the Boys' and Girls' Club Work.

R. L. Leeper will return to Edgewood Farm in Marion Co., where he will boost the Spotted Poland China.

O. H. Mautz will be connected with the firm of Carpenter & Ross, of Maxwalton Farm, Mansfield, O.

C. J. Mattingly will return to his father's farm and help boost Muskingum Co. Merinos.

J. T. White will return to Pennsylvania, where he will continue the feeding of good Holsteins.

E. M. Weaver will go to the Cloverdale Hall Farms, Fergus Falls, Minn.

C. A. McNutt will return to his father's farm in Hardin Co. and help

in the production of Shropshires and Poland Chinas.

THE BETTER SIRES- BETTER STOCK MOVEMENT

The Better Sires-Better Stock movement was inaugurated October 1, 1919, and has grown rapidly ever since. Perhaps no campaign has a more worthy purpose or has the possibilities of producing more good. Sponsored jointly by the majority of the states and by the United States Department of Agriculture, the movement encourages the general use of purebred in all the principal classes of live stock. The classes are: cattle, horses, swine, sheep, goats, and poultry. The campaign also provides official recognition to the owners of purebred sires of good quality. Whether female breeding animals should also be purebred depends largely upon the skill of the breeder, the kind of farming followed, and the numerous local factors. Purebred sires, however, are recommended for all conditions.

The present economic pressure for reduced costs of production and quicker turnover of labor and capital invested, calls for a better grade of live stock. This can best be brought about by the use of purebred sires in the grading up of a herd. This process of harnessing the vital forces of heredity brings improvement that quickly becomes visible to the eye, and is also profitable in many ways. Grading up is a systematic, interesting, and economical method of live stock improvement.

The monetary gains from purebred sires over scrubs has been tabulated by the United States Department of Agri-



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Interesting treatise, "The Story of Cheese," J. D. Frederiksen, free on request.

culture using the results of the various state experiment stations. These cases indicate that fully 25 per cent. may be added to the market value of live stock and its products because of greater production, better quality, or added uniformity obtained thru the use of purebred sires. There would be a saving of over one billion dollars in the United States, or an average of \$200 on every farm where live stock is kept, if the scrub stock were replaced by purebreds or high grades. No other argument is needed to support the Better Sires-Better Stock campaign.

A QUESTION FOR TEACHER

The teacher was hearing the class in mathematics.

"Now," said she, "in order to subtract, things must be in the same denomination. For instance, we could not take three pears from four peaches, nor eight horses from ten cats. Do you understand?"

There was assent from the majority of pupils. One little boy in the rear raised a timid hand.

"Well, Bobby, what is it?" asked the teacher.

"Please, teacher, said Bobby, 'couldn't you take three quarts of milk from two cows?'"—Lone Scout.

SOME JOB FOR DAD

A school teacher received the following note: "Dear madam, please excuse my tommy today, he wont come to skule because he is acting as time keeper for his father, and it is your fault. U gave him a example, if a field is 5 miles around how long will it take a man walking $3\frac{1}{2}$ miles per hour to walk $2\frac{1}{4}$ times around it? Tommy aint a man, so we sent his father. They went early this morning and father will walk round the field and Tommy will time him, but

please don't give my boy such examples again, because my husband must go to work every day to support his family."—Country Gentleman.

FEEDING THE EWE FLOCK

(Continued from page 370)

feeding grain and roughage, the former can gradually be reduced and the roughage correspondingly increased. The too liberal use of grain just previous to lambing quite often results in the ewe having milk fever.

Briefly stated, it may be said that breeding ewes like a variety of feeds; the pregnant ewe should get plenty of exercise; succulent feeds are quite desirable feed for them. They need very little grain and this need not be given them previous to a month before lambing; fattening grain as a sole ration should be avoided; leguminous hays are good sheep feeds and timothy is poor. While a number of other points might be mentioned in writing of the Fall and Winter Care of the Ewe, these are some of the main factors to take into consideration.

ALUMNI

T. E. Heinton, '21, is located at Lincoln, Neb., as extension engineer for the Nebraska State College of Agriculture.

W. W. Smelker, '01, is sales engineer for the Roderick Lean Company at Mansfield, Ohio.

B. S. Fich, '07, is instructor in Farm Buildings at the University of Wisconsin, Madison.

M. S. Klinck, '16, is head of the Agricultural Engineering Department at Rutgers College, New Jersey.

Mark L. Nichols, '12, is at the Alabama Polytechnic Institute, Auburn, Ala., as head of the Agricultural Engineering Department.

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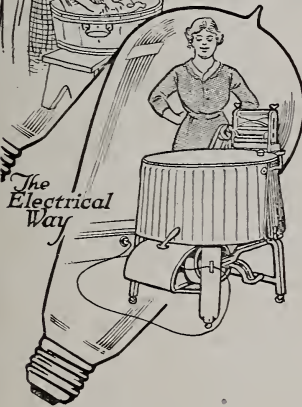


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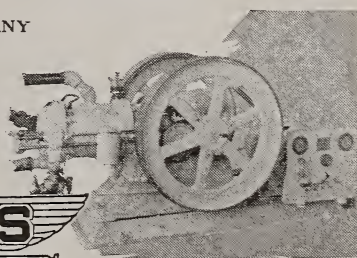
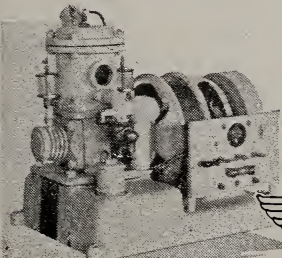
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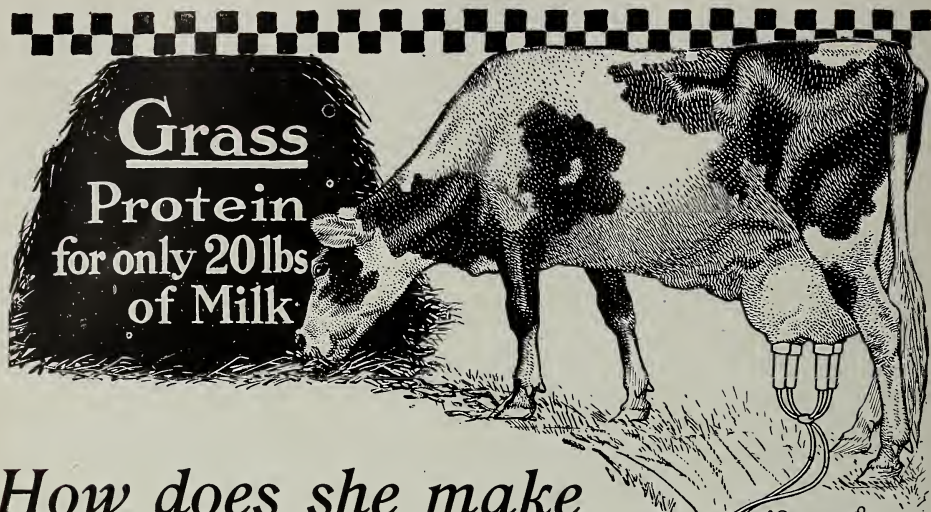
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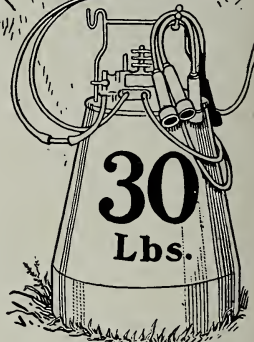




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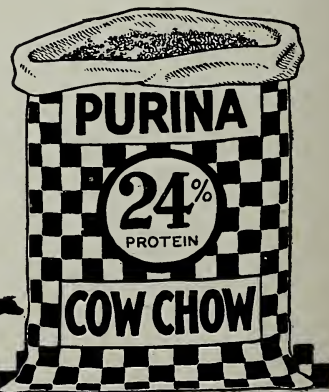
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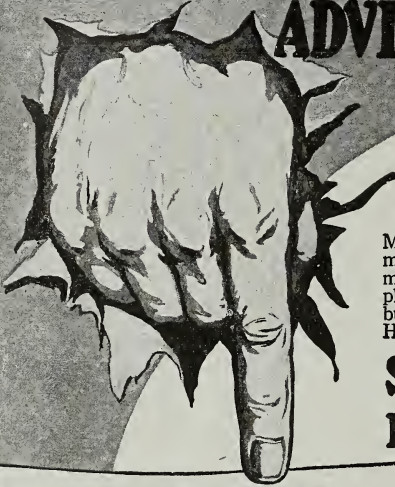
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Yours very sincerely,

(Signed) J. M. HACKNEY.

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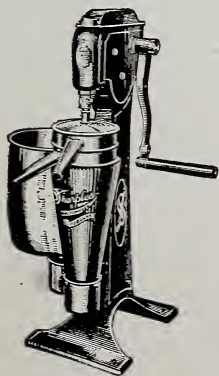




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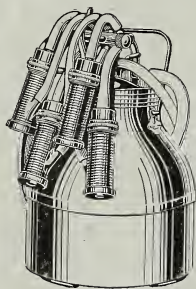
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Long ago the De Laval Company recognized the need for a mechanical means of milking, to place the dairy business on a machine basis. For over twenty years experiments have been conducted, and after many years of research, test and use, and not until the De Laval Company was absolutely sure its milker was actually a better way of milking, was it offered for sale. Now after four years of commercial use, in all sections of the country, owners are proving to create preference for it and eliminates the drudgery of milking, but it actually increases the flow of milk even over good hand milking.

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